ADOPTION NOTICE

SAE-AMS3326, "Fluorisilicone Rubber, Fuel and Oil Resistant, 50-65," was adopted on October 3, 1994, for use by the Department of Defense (DoD). Proposed changes by DoD activities must be submitted to the DoD Adopting Activity: 645 LOG/LGME, Gentile Station, 1060 Hamilton Street, Dayton, OH 45444-5400. DoD activities may obtain copies of this standard from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094. The private sector and other Government agencies may purchase copies from the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.

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LAND SEA AIR SPACE

Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 3326C
Superseding AMS 3326B
Issued 6-15-59
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FLUOROSILICONE RUBBER
Fuel and Oil Resistant
50 - 65

1. SCOPE:

1.1 Form: This specification covers a fluorosilicone rubber in the form of sheet, strip, tubing, and ø molded shapes.

1.2 Application: Primarily for rubber-like parts requiring continuous operation in aromatic fuels and di-ester lubricants at temperature from -60° to +150°C (-76° to +302°F).

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, Pennsylvania 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods
AMS 2810 - Identification, Natural and Synthetic Rubber Materials

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

ASTM D297 - Chemical Analysis of Rubber Products
ASTM D395 - Compression Set of Vulcanized Rubber
ASTM D412 - Tension Testing of Vulcanized Rubber
ASTM D471 - Change in Properties of Elastomeric Vulcanizates Resulting from Immersion in Liquids
ASTM D573 - Accelerated Aging of Vulcanized Rubber by the Oven Method
ASTM D624 - Tear Resistance of Vulcanized Rubber
ASTM D2137 - Low-Temperature Impact Test for Brittleness Determination of Flexible Polymeric Materials or Fabrics Coated Therewith, or Both
ASTM D2240 - Indentation Hardness of Rubber and Plastics by Means of a Durometer

3. TECHNICAL REQUIREMENTS:

3.1 Material: Shall be a compound based on a fluorosilicone elastomer, suitably cured to produce a ø product meeting all technical requirements of this specification.

3.2 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with the specified ASTM methods, insofar as practicable:

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3.2.1	As Received:		
ø 3.2.1.1	Hardness, Durometer "A" or equiv.	50 - 65	ASTM D2240
3.2.1.2	Tensile Strength, min	800 psi (5.52 MPa)	ASTM D412, Die B or C
3.2.1.3	Elongation, min	130%	ASTM D412, Die B or C
3.2.1.4	Tear Resistance, min	40 lb per in. (7.0 kN/m)	ASTM D624, Die B or C
3.2.1.5	Specific Gravity	Qualification Value ± 0.05	ASTM D297
3.2.2	Di-Ester Oil Resistance: (Immediate Deteriorated Properties)		ASTM D471 Medium: ASTM Service Fluid No. 101 Temperature: 150°C ± 3 (302°F ± 5.4) Time: 48 hr ± 0.5
3.2.2.1	Hardness Change, Durometer "A" or equiv., max	-10	
3.2.2.2	Volume Change, max	+20%	
3.2.3	Fuel Resistance: (Immediate Deteriorated Properties)		ASTM D471 Medium: ASTM Ref. Fuel B Temperature: 20° - 30°C (68° - 86°F) Time: 48 hr ± 0.5
3.2.3.1	Hardness Change, Durometer "A" or equiv., max	-10	
3.2.3.2	Tensile Strength Change, max	-60%	
3.2.3.3	Elongation Change, max	-50%	
3.2.3.4	Volume Change, max		
3.2.3.4.1	For molded O-rings	+25%	
3.2.3.4.2	For other forms	+30%	
3.2.4	Phosphate Ester Fluid Resistance: (Immediate Deteriorated Properties)		ASTM D471 Medium: SAE Phosphate Ester Standard Test Fluid No. 1A (See 8.2) Temperature: 70°C ± 1 (158°F ± 1.8) Time: 48 hr ± 0.5
3.2.4.1	Hardness Change, Durometer "A" or equiv.	-25 to 0	

3.2.4.2	Tensile Strength Change, max	-70%	
3.2.4.3	Elongation Change, max	-45%	
3.2.4.4	Volume Change	0 to +30%	
3.2.5	Dry Heat Resistance:		ASTM D573 Temperature: 225° C ± 3 (437° F ± 5.4) Time: 24 hr ± 0.5
3.2.5.1	Hardness Change, Durometer "A" or equiv.	-5 to +5	
3.2.5.2	Tensile Strength Change, max	-25%	
ø 3.2.5.3	Elongation Change, max	-20%	
3.2.5.4	Bend (flat)	No cracking or checking	
3.2.6	Compression Set:		ASTM D395, Method B Temperature: 175° C ± 3 (347° F ± 5.4) Time: 22 hr ± 0.5
3.2.6.1	Percent of original deflection, max	50	
ø 3.2.7	Low Temperature Brittleness:	Pass	ASTM D2137, Method A Temperature: -65° C ± 3 (-85° F ± 5.4)

3.2.8 Weathering: When specified, the product shall have weather resistance acceptable to the purchaser, determined by a procedure agreed upon by purchaser and vendor.

3.2.9 Corrosion: The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service. Discoloration of metal shall not be considered objectionable.

3.3 Quality: The product shall be uniform in quality and condition, clean, smooth, as free from foreign ø material as commercially practicable, and free from imperfections detrimental to fabrication, appearance, or performance of parts.

3.4 Tolerances: Unless otherwise specified, the following tolerances shall apply:

3.4.1 Sheet and Strip:

TABLE I

Nominal Thickness Inches	Tolerance, Inch plus and minus
Up to 0.125, incl	0.016
Over 0.125 to 0.500, incl	0.032
Over 0.500	0.047

TABLE I (SI)

Nominal Thickness Millimetres	Tolerance, Millimetres plus and minus
Up to 3.18, incl	0.41
Over 3.18 to 12.70, incl	0.79
Over 12.70	1.19

3.4.2 Tubing:

3.4.2.1 Diameter:

TABLE II

Nominal OD or ID (not both), Inches	Tolerance plus and minus	Ovality, % (See 3.4.2.1.1)
Up to 0.500, incl	0.020 in.	10
Over 0.500 to 1.000, incl	0.030 in.	15
Over 1.000	4%	15

TABLE II (SI)

Nominal OD or ID (not both), Millimetres	Tolerance plus and minus	Ovality, % (See 3.4.2.1.1)
Up to 12.70, incl	0.51 mm	10
Over 12.70 to 25.40, incl	0.76 mm	15
Over 25.40	4%	15

3.4.2.1.1 Ovality applies to tubing ordered in straight lengths with wall thickness of 0.063 in. (1.60 mm) and over, and shall be computed from the difference of the minor and major axis diameter measurements, taken at the same transverse plane on the tube, expressed as a percentage of the nominal diameter.

3.4.2.2 Wall Thickness:

TABLE III

Nominal Wall Thickness Inches	Tolerance plus and minus
Up to 0.063, excl	0.005 in.
0.063 and over	10%

TABLE III (SI)

Nominal Wall Thickness Millimetres	Tolerance plus and minus
Up to 1.60, excl	0.13 mm
1.60 and over	10%